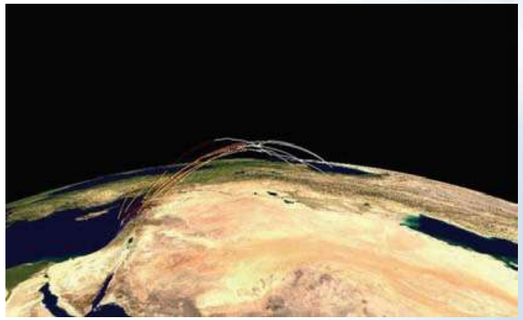
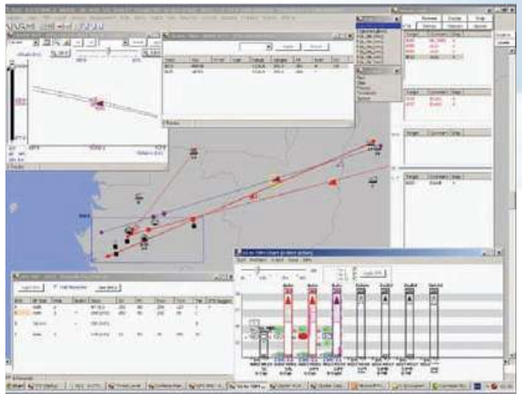
BMD

Family of Advanced Ballistic Missile Defense Solutions

ITB - Active Defense Battle Lab



Multi-Tier BMD C^2



BMD C^2 HMI

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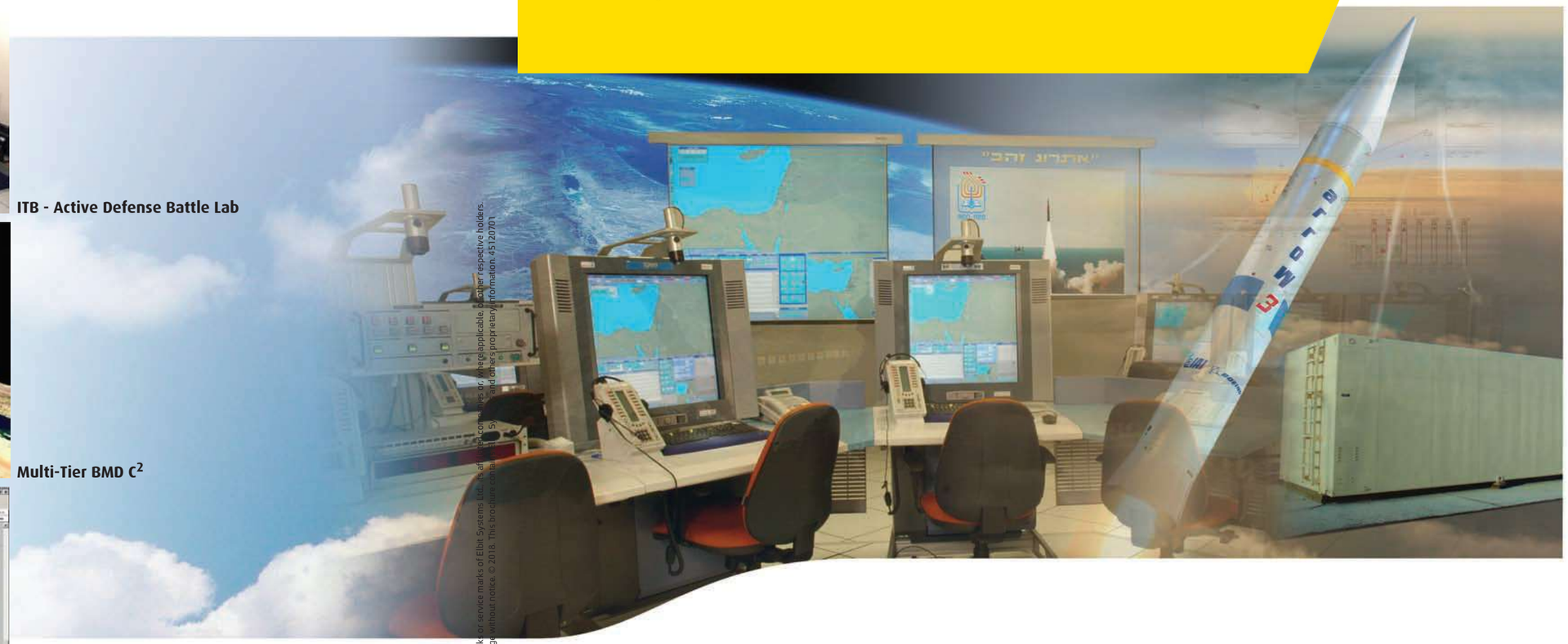

Elbit Systems EW and SIGINT - Elisra

BMD

Family of Advanced Ballistic Missile Defense Solutions

- C^2BMC
  (Command, Control, Battle Management, and Communications)
- Fire Control
- Simulation and Training

Elisra has been a world leader in the development of missile defense systems for over two decades. Among the areas in which the company has achieved specialized, field-proven expertise and technological superiority are Ballistic Missile Defense Command, Control, Battle Management, Communications, Fire Control, Simulation and Training.

The company is the prime contractor for major BMD programs, including the Israel National Upper Tier and Lower Tier BMD Command, Control, Battle Management, and Communications (C^2BMC) Centers; the Arrow Weapon System's (AWS) and the David's Sling Weapon System's Fire Control Centers; and the Israel BMD Battle Lab.

BMD Command, Control, Battle Management & Communications (C2BMC) and Fire Control Systems

Designed and developed by Elisra, the C^2BMC of the Israel National Upper Tier Missile Defense is a fully-operational system - deployed and operated by the Israel Air Force (IAF) Air Defense, which has successfully conducted several live interception tests. This C^2BMC is based on the Arrow Weapon System Fire Control Center, which was also developed by Elisra.

Under development are the C^2BMC of the Israel National Lower Tier Ballistic Missile and Rocket Defense and the Fire Control Center (FCC) of the David's Sling Weapon System. The C^2BMC manages all the sensors and weapon systems allocated for lower tier defense missions, including the David's Sling and Iron Dome Weapon Systems. The David's Sling FCC is an integrated Air and Missile Defense Command and Control system.

All of the company's C^2BMC and FCC systems were developed in close cooperation with Israel's Air Force Air Defense warfighters, and provide unique Human-in-the-Loop (HIL) capabilities, as well as an easy-to-use Human Machine Interface (HMI). Incorporating today's most advanced technologies, these sophisticated, fully-automated systems enable human intervention at every stage. Offering a full range of critical functionalities, the systems process data from sensors and external sources, generate real-time threat pictures, assess threat levels, optimize planning and control of multiple engagements in real-time, and manage sensors and weapon system resources. The systems are fully interoperable with other BMD weapon systems and with the IAF C^2I systems. Rapid and thorough training is enabled via the systems' built-in simulation capability. Recording and playback features ensure comprehensive post-mission debriefing and analysis.

The BMD Battle Lab

The BMD Battle Lab was developed by Elisra for the US Missile Defense Agency (MDA), the US Army Space and Missile Defense Command (SMDC), and the Israel Ministry of Defense (IMOD) as part of the US Strategic Defense Initiative. The Battle Lab has made a significant contribution to the development of Israeli BMD weapon systems and to Israel's defense against escalating missile and rocket threats. This is a flexible, end-to-end, multilayer Ballistic Missile Defense Battle Lab, providing extensive Human-in-the-Loop (HIL) capabilities. It supports all aspects of BMD analysis, design, development, operation and training - with emphasis on Battle Management.

The BMD Battle Lab was designed to evaluate defense architectures and systems, as well as battle management concepts, algorithms, and operational procedures. It simulates ballistic missile and rockets attacks against defended assets - and the operation of defense systems against those attacks - both in real-time HIL mode and in automatic simulation mode.

Functionality
Battle Lab functionality includes: flexible adaptive threats, sensors, interceptors, C2BMC, FCC, and communication models; detailed models of BMD elements in the Middle East arena; Operator's display emulation; 3D visualization; DIS, HLA, and XML protocol interfaces; Link 16 interface; exercise recording and playback; extensive debriefing and analysis tools, and variable fixed and mobile configurations.

Simulation Models
The BMD Battle Lab offers exceptionally flexible and adaptive simulation models for ballistic missile threats, the environment, sensors, interceptors and communication. This inherent flexibility enables simulation of a wide variety of threat scenarios, arenas, weapon systems, and C2BMC at all levels.

Customizability
The BMD Battle Lab can be adapted to different environments, doctrines, systems, and concepts - providing early availability of validated, tailor-made BMD Battle Labs based on existing blocks and experience.

The Mobile Option
Elisra's Mobile BMD Battle Lab enhances flexibility, enabling fast and easy relocation to multiple sites.

A History of Successful Missions
Mature and proven, Elisra's BMD Battle Lab has been used extensively since 1992. Missions in the US and Israel include: BMD architecture studies; development tool for design of the operational AWS and David's Sling FCCs and the Israel National Upper and Lower Tier C2BMCs; prototyping new BMC algorithms and HMI tools for operational systems; interoperability studies and experiments; CONOPS (Concept of Operations) development and joint multinational exercises.